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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Establishment of Rules and Policies for the	)	IB Docket No. 95-91
Digital Audio Radio Satellite Service in the	)	GEN Docket No. 90-357
2310-2360 MHz Frequency Band	)	
	)	

COMMENTS OF
THE NATIONAL ASSOCIATION OF BROADCASTERS

NAB has previously filed comments on the use of SDARS terrestrial repeaters, objecting to authorization of their use where the record was bereft of sufficient relevant technical information or replete with only outdated technical information in this regard. In response to NAB's objections, the two SDARS licensees, Sirius Satellite Radio, Inc. and XM Radio Inc., have now placed relevant and updated information in the record.

Yet even at this late date, Sirius Satellite Radio asks for yet one more change to its own proposed rules in order, apparently, to allow its extensive network of repeaters to be fed from somewhere *other than* its satellites. NAB, in these comments, objects to this late-date change in the expected ground rules, urges the Commission to require the licensees to file with the Commission important (but not burdensome) technical and location information allowing affected parties or the public to assess compliance with the repeater rules and re-states our support for the Commission's tentative and basic conclusion to prohibit the use of terrestrial repeaters to transmit locally originated programming.

I. SDARS Licensees Should Be Required To Disclose To The Commission Technical Details And Locations Of All Installed Terrestrial Repeaters.

NAB requests that the SDARS terrestrial repeater rules include a provision that service providers be required to file with the Commission technical information on any deployed repeaters, including, at a minimum, antenna location (i.e. latitude and longitude coordinates) and height, antenna pattern, transmit power (EIRP), and prediction of estimated coverage area.

This is a vitally necessary provision, particularly important if the Commission elects to allow for blanket licensing of these facilities (as both Sirius and XM Radio request in their Supplemental Comments), and places no undue burden on the license holders since all of this information would by necessity be obtained by them before an installation could take place.[1] By filing this information with the Commission, it will then be possible for other interested parties, such as adjacent spectrum users, to confirm that these installations are not causing undue interference, and it will also be possible for the Commission and others to verify that the repeater transmissions do not include locally originated material.

Indeed, without such disclosure, it would be potentially difficult and burdensome for anyone but the license holder to specifically monitor terrestrially-originated SDARS signals. While no mention has been made by the SDARS receiver manufacturers, it is reasonable to expect that SDARS receivers typically will *not* indicate *which* received signal (direct from the satellite or through a terrestrial repeater) is currently in use, since this would be contrary to the "transparent" nature (from the listener's viewpoint) of how

satellites and repeaters theoretically should work. In the absence of such knowledge, curious listeners would be required to either employ sophisticated and expensive test equipment, such as an RF spectrum analyzer, or conduct exhaustive, trial-and-error "hunts," for terrestrial receiver sites, in order to have the ability to specifically monitor the content of terrestrially-originated SDARS signals.

On the other hand, if the Commission requires that this information be disclosed, then practically anyone with an SDARS receiver will be able to quickly and easily virtually guarantee reception of either the satellite or terrestrial signals as desired. Only in this fashion can compliance with two key repeater rules—no local origination and no undue interference to adjacent users—be adequately determined.

II. SDARS Terrestrial Repeaters Must Be Fed Directly From The Satellites Themselves.

One of the main arguments that NAB has made against the use of terrestrial repeaters is that repeaters are simply a crutch for a technology that is not up to the task of providing the seamless, mobile coverage promised by its proponents and desired by the Commission, especially in cities where numerous "urban canyons" exist. Allowing the use of terrestrial repeaters, in NAB's view, sets the stage for these service providers to offer nothing more than a satellite-fed terrestrial radio service, totally circumventing the Commission's stated intentions of establishing a high-tech direct broadcast satellite radio service for the U.S. listening public.

Now, in their most recently filed Supplemental Comments, Sirius is proposing to eliminate even the requirement that these repeaters be fed from the SDARS satellite, paving the way for a fully terrestrial digital radio network, totally independent (in a

[1] *See* Supplemental Comments of XM Radio Inc., filed in this docket, December 17,

technical sense) from the satellite network.[2] This proposal, coupled with other details just now being provided, makes it alarmingly clear that, particularly in urban areas, Sirius intends to operate primarily as a terrestrial broadcaster, with no dependence whatsoever on the satellite signal itself.

The most striking evidence of this can be found in the Sirius Exhibit entitled "Report on Measurements of SDARS Terrestrial Repeater Transmitters,"[3] which details, among other things, repeater tests performed by Sirius in both San Francisco and Houston. Consider the facts presented in this Exhibit:

a) Regarding the number of repeaters required, SSR states that it "... anticipates a need for about 105 [terrestrial repeater] sites in approximately 46 cities *initially*";[4]

b) Regarding the maximum power at which these repeaters can operate, "SSR has determined [the maximum EIRP that can be successfully utilized in SDARS repeaters] to be approximately 1 kW and 15 dBI (including cable losses)...[which] sets an upper-bound on usable EIRP of approximately 40 kW."[5]

1999, at 3.

[2] *See* Supplemental Comments of Sirius Satellite Radio, January 18, 2000, at Exhibit 3. In this exhibit, Sirius proposes to revise the Commission's draft 47 C.F.R. § 25.144(e), to eliminate the requirement that the signals being transmitted by the repeater be received from "their operating DARS satellite(s)," instead replacing this with the requirement that the repeater simply retransmit the "same programming" as the DARS satellite.

[3] *Id.*, at Exhibit 4.

[4] *Id.*, at Exhibit 4, pg. 3 (emphasis added).

[5] *Id.*, at Exhibit 4, pg. 23. This is equivalent in power to a Class B FM radio facility.

Sirius goes on to say that this level can be reduced in situations where "multiple repeater sites are used in close proximity to each other."[6]

c) Continuing, in their arguments meant to demonstrate that their repeater networks do not create a hazardous radiation situation, Sirius notes that "In order to minimize the number of repeaters used, a reasonable deployment strategy calls for the use of high sites [i.e. sites at a high elevation] together with the EIRP's indicated above [referring to the 40 kW EIRP case] ."

Sirius' intentions in this regard now become clear – 46 cities (initially) equipped with high-powered terrestrial repeaters which, if Sirius has its way, don't even need to be fed a signal from the SDARS satellite. In a similar fashion, XM Radio, by stating their intention to "deploy and operate approximately *1500 terrestrial repeaters*, within a 20 to 30 mile radius of the urban centers of the largest seventy metropolitan areas in the country"[7] is also clearly planning to rely heavily on repeaters to deliver their service to listeners. These approaches are wholly contrary to the Commission's earlier proposal that the rules for this service ensure that terrestrial repeaters are complementary in nature (to the satellite signal) "so that there would be no transformation of satellite DARS into an independent terrestrial DARS network."[8]

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[6] *Id.* The repeater test done by Sirius in San Francisco, and described in the Exhibit, is such a situation – these repeaters were configured to operate as a so-called "single-frequency network" which are typically designed to cover wide areas using multiple transmission sites (they used three) that can work in conjunction with one another.

[7] *See* Supplemental Comments of XM Radio, Inc., December 17, 1999, pg. 3 (emphasis added).

[8] *See* Report and Order, Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, Gen. Docket No. 90-357, adopted March 3, 1997, at paragraph 139.

If the Commission were to adopt the rules that Sirius suggests, then all of the pieces would be in place for not one, but *two* such independent terrestrial networks. Both Sirius and XM Radio have already sub-divided their 12.5 MHz of spectrum into distinctly separate satellite and terrestrial segments. They have both developed systems which utilize two different kinds of modulation, one for the satellite signals and one for the terrestrial signals and they have designed receivers which in effect are two receivers in one – a satellite receiver and a terrestrial receiver.

NAB asks that the Commission adopt its rules as now proposed in this regard and reaffirm its original intention in this rulemaking—the establishment of a satellite radio service—using the only means now left for it to do so, namely, requiring that these terrestrial repeaters be *fed* from the same satellite signal which is used by the receivers themselves and *expressly prohibiting* all other means of signal delivery to said repeaters. This is the *only* way the Commission can prevent this technology from being what it was never intended to be, a terrestrial digital radio network.[9]

III. SDARS Terrestrial Repeaters Must Be Prohibited From Transmitting Locally Originated Programming.

NAB has always maintained that SDARS terrestrial repeaters must be explicitly prohibited from transmitting any locally originated programming, lest SDARS become, to any extent, a terrestrial-fed network, rather than the satellite network intended to be

[9] The Commission states, Report and Order, *supra,* at para. 142, that it "must determine how to ensure any use of terrestrial repeaters is complementary to the DARS service and is only for retransmission of signals received from the satellite." Given the highly problematic task of the Commission's physically verifying that every repeater is being fed only from an authorized satellite, the Commission's rules must explicitly require such operation, as the Commission here proposes.

authorized. The Commission, and the proponents, have concurred with this basic requirement[10] and the Commission has tentatively concluded to prohibit the use of terrestrial repeaters to transmit locally originated programming.[11] This, to NAB, is the *sine qua non* of the authorization of terrestrial repeaters for the SDARS service.

For the foregoing reasons, NAB urges the Commission to authorize the use of SDARS terrestrial repeaters *only* with a requirement for filing technical information of deployed repeaters with the Commission and with the explicit requirements in the rules (as are now proposed) for repeater transmissions fed only by an operating DARS satellite and with no local origination.

Respectfully submitted,

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[10] *See* Report and Order, *supra*, at para. 140.

[11] *Id.* at para. 142.

CERTIFICATE OF SERVICE

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